

Treatment of Hepatitis C with Glecaprevir/Pibrentasvir in a Patient with Concurrent Stricturing Crohn's Disease on Adalimumab

Almoutaz Hashim

Department of medicine at the university of Jeddah, Jeddah-Saudi Arabia

Correspondence:

Dr. Almoutaz Hashim *

Department of medicine at the university of Jeddah,
Jeddah

Saudi Arabia

Email: dralmoutaz@yahoo.ca

Received: December 2020; Accepted: January 2021; Published: February 1, 2021.

Citation: Almoutaz Hashim. Treatment of Hepatitis C with Glecaprevir/Pibrentasvir in a Patient with Concurrent Stricturing Crohn's Disease on Adalimumab. World Family Medicine. 2021; 19(1): 143-145 DOI:10.5742/MEWFM.2021.93996

Abstract

A 22-year-old male with long standing, active Crohn's disease on Adalimumab had presented with increasing levels of his transaminases. A full workup was conducted and the patient was found to have hepatitis C (HCV) based on a positive HCV antibody, polymerase chain reaction (PCR) and genotyping. He was started on a regimen of Glecaprevir/Pibrentasvir with excellent response defined by complete normalization of his transaminitis and an undetectable PCR at the end of 8 weeks of treatment and achieved sustained viral response at 12 weeks of treatment. This is the first case reporting the use of a combination of Glecaprevir/Pibrentasvir and Adalimumab in a patient with HCV and Crohn's disease.

Key words: Hepatitis C, Glecaprevir/Pibrentasvir, Crohn's Disease

Introduction

Inflammatory bowel disease (IBD) is a chronic illness with an underlying autoimmune process(1); it encompasses both ulcerative colitis (UC) and Crohn's disease (CD). The prevalence of hepatitis C virus (HCV) in patients suffering from IBD was found to be around 1-6% in the western world(2,3,4). Anti tumour necrosis factor (anti TNF) inhibitors such as infliximab and Adalimumab had been approved for the treatment of moderate to severe CD(5). Management of IBD and concomitant HCV has changed remarkably in the last few years, with many new lines of treatment being introduced. Initially, treatment of HCV was interferon based, which was shown to cause more IBD flares. Direct acting antivirals (DAA) were first introduced in 2011 and were used first in combination with interferon therapies(6,7).

Over the last ten years, newer agents have entered the market with improved efficacy and safety profiles resulting in the possibility of near future global disease elimination. However, despite the advancements in the field, treatment of HCV in IBD patients remains a difficult task. Drug metabolism and toxicity, drug-drug interactions and timing strategies are among the main challenges (6,8). Relatively older DAAs (Sofosbuvir alone or in combination with Ledipasvir, Simeprevir or Daclatasvir, Ritonavir-boosted Paritaprevir, Ombitasvir-Dasabuvir, Grazoprevir-Elbasvir and Ribavirin) have been used to treat HCV in patients with concomitant IBD. Glecaprevir plus Pibrentasvir have not been reported in these patients before(9).

This paper describes the case of a young man who was diagnosed with HCV while having active Crohn's disease and receiving Adalimumab. He was treated successfully with Glecaprevir/Pibrentasvir and achieved acceptable disease control.

Case Report

In this article, we report the case of a 22-year-old male who was known to have colonoscopy proven Crohn's disease since 2011. The patient had recent active disease as evidenced by a high stool calprotectin (522) and a magnetic resonance small bowel enterorrhaphy which revealed terminal ileum strictures and a proximal bowel dilation. He was maintained on adalimumab 40 mg subcutaneous injection every two weeks. Whilst the patient was following with the gastroenterology and hepatology service, he was found to have increasing alanine aminotransferase (ALT) and upon further workup was diagnosed with type 4 HCV based on a positive HCV antibody, polymerase chain reaction (PCR) and genotyping. A fibroscan was conducted and ruled out the presence of cirrhosis. The patient was started on Glecaprevir 100 gram/Pibrentasvir 40 milligram combined tablet (MAVYRET, AbbVie) with a dosage of three tablets once daily for a total of 8 weeks (started on 13-1-2020 to 8-3-2020). This treatment resulted in PCR proven HCV clearance and the subsequent normalization of his ALT after conclusion of therapy at 8 weeks and sustained viral response at 12 weeks. (Table 1)

Discussion

We are reporting the successful treatment of a patient with long standing active Crohn's disease and a recent diagnosis of HCV with a therapy combination of Glecaprevir plus Pibrentasvir and Adalimumab. This line of management resulted in remission of both entities.

Combined DAA attacks specific proteins in the replication cycle of the virus leading to viral demise(10). Glecaprevir plus Pibrentasvir is a recently produced DAA that was introduced in 2017; it acts as a NS5A and a NS3/4A protease inhibitor. It is used to treat HCV genotypes 1-4 in patients with either early cirrhosis or without it. It has been shown to have good tolerability and a good safety profile with a sustained viral response (SVR) reaching 95%(11).

	Before treatment	8 weeks after treatment	12 weeks after treatment
ALT	317 U/L	21	18
HCV PCR	2,843,352 IU/mL	Not detected	Not detected
HCV PRC : Hepatitis C Virus Quantitative Polymerase chain reaction , ALT: Alanine Transaminase			

Glecaprevir plus Pibrentasvir use in Crohn's disease patients receiving Vedolizumab has been reported in literature with resolution of the infection and no remarkable adverse events on the IBD side. On the other hand, Infliximab, Adalimumab, Golimumab were all reported to be used in patients receiving older DAAs (Sofosbuvir based regimens or other older agents) but not with Glecaprevir plus Pibrentasvir(8,12). This report is therefore unique and shows an unprecedented medication regimen.

Concomitant, sequential or inverted sequential timing strategies have all been used in clinical practice and have shown nearly similar efficacy rates, however, the use of shorter therapy durations (8 weeks) increases the drug's administration feasibility. The choice between these different strategies should be made on an individual basis.

Although HCV screening prior to the use of biological therapy is a staple in treatment guidelines, it is not universally done in clinical practice. Biological therapy was not reported to be as strongly associated with reactivation of HCV as compared to hepatitis B, however, its immunomodulatory effect on viral dynamics might lead to treatment difficulties(14,15).

The prevalence of HCV in IBD patients is close to the numbers reported in the general population. Therefore, this presentation is not an uncommon occurrence and requires implementation of effective screening protocols and follow up guidelines. The recent medication surge (DAAs) in the management of HCV offers promising results even in the presence of active IBD disease.

Conclusion

The treatment of IBD with concomitant HCV is an area of research that is still evolving, with many DAA agents proving to be effective and safe. The combination of Glecaprevir plus Pibrentasvir and Adalimumab was used in this report with excellent outcomes.

References

1. Ananthakrishnan AN. Epidemiology and risk factors for IBD. *Nat Rev Gastroenterol Hepatol*. 2015;12(4):205–17.
2. Bonifati, C., Lora, V., Graceffa, D., and Nosotti, L. (2016). Management of psoriasis patients with hepatitis B or hepatitis C virus infection. *World J. Gastroenterol*. 22, 6444–6455. doi: 10.3748/wjg.v22.i28.6444
3. Caso, F., Cantarini, L., Morisco, F., Del Puente, A., Ramonda, R., Fiocco, U., et al. (2015). Current evidence in the field of the management with TNF- α inhibitors in psoriatic arthritis and concomitant hepatitis C virus infection. *Expert Opin. Biol. Ther*. 15, 641–650. doi: 10.1517/14712598.2015.1011616
4. Chevaux, J. B., Nani, A., Oussalah, A., Venard, V., Bensenane, M., Belle, A., et al. (2010). Prevalence of hepatitis B and C and risk factors for nonvaccination in inflammatory bowel disease patients in Northeast France. *Inflamm. Bowel Dis*. 16, 916–924. doi: 10.1002/ibd.21147.
5. Abbass M, Cepek J, Parker CE, et al. Adalimumab for induction of remission in Crohn's disease. *Cochrane IBD Group, ed. Cochrane Database of Systematic Reviews*. Published online November 14, 2019.
6. Basyte-Bacevice V, Kupcinskas J. Evolution and revolution of hepatitis c management: from non-a, non-b hepatitis toward global elimination. *Dig Dis*. 2020;38(Suppl. 2):137-142.
7. Ohta Y, Kanda T, Katsuno T, et al. Successful sofosbuvir treatment with ribavirin dose reduction for chronic hepatitis C virus genotype 2 infection in a patient with ulcerative colitis: a case report. *BMC Gastroenterology*. 2016;16(1):66.
8. Imperatore N, Castiglione F, Rispo A, Sessa A, Caporaso N, Morisco F. Timing strategies of direct-acting antivirals and biologics administration in HCV-infected subjects with inflammatory bowel diseases. *Front Pharmacol*. 2017;8.
9. Degasperi E, Caprioli F, El Sherif O, Back D, Colombo M, Aghemo A. Challenges in treating patients with inflammatory bowel disease and concurrent viral hepatitis infection. *Expert Review of Gastroenterology & Hepatology*. 2016;10(12):1373-1383.
10. Aghemo A, Colombo M. Glecaprevir/pibrentasvir: the final piece in the hepatitis c virus treatment puzzle? *Gastroenterology*. 2018;154(4):1195-1196.
11. Lampertico P, Carrión JA, Curry M, et al. Real-world effectiveness and safety of glecaprevir/pibrentasvir for the treatment of patients with chronic HCV infection: A meta-analysis. *Journal of Hepatology*. 2020;72(6):1112-1121.
12. Rojo E, Chaparro M, García-Buey L. Efficacy and safety of glecaprevir/pibrentasvir in a patient with hcv-induced porphyria cutanea tarda receiving vedolizumab for crohn's disease. *Journal of Crohn's and Colitis*. 2020;14(4):567-568.
13. Oikonomou K, Kapsoritakis A, Eleftheriadis T, Stefanidis I, Potamianos S. Renal manifestations and complications of inflammatory bowel disease: Inflammatory Bowel Diseases. 2011;17(4):1034-1045.
14. Chebli JM, Gaburri PD, Costa L de A, et al. Preparing patients with inflammatory bowel diseases for biological therapies in clinical practice. *Journal of Gastroenterology and Hepatology Research*. 2018;7(2):2542-2554.
15. de Lourdes Setsuko Ayrizono M, de Sene Portel Oliveira P, José Fagundes J. Biological therapy for inflammatory bowel diseases: screening prior to initiating and how to proceed when surgery is necessary. In: Franco Leal R, Torriani T, eds. *Biological Therapy for Inflammatory Bowel Disease*. IntechOpen; 2020.